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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Applicants:

Date: August 21, 2006

Beaman et al.

Group Art Unit: 2829

Serial No.: 09/251,988

Examiner: J. M. Hollington

Filed: February 17, 1999

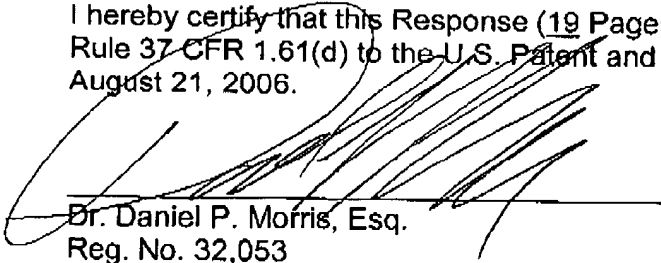
Docket No.: YO999-088

For: **STRUCTURAL DESIGN AND PROCESSES TO CONTROL PROBE
POSITION ACCURACY IN A WAFER TEST PROBE ASSEMBLY**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this Response (19 Pages) are being facsimile transmitted under Rule 37 CFR 1.61(d) to the U.S. Patent and Trademark Office to (571) 273-8300 on August 21, 2006.


Dr. Daniel P. Morris, Esq.
Reg. No. 32,053

APPLICANT REQUESTS AN INTERFERENCE
BE DECLARED UNDER 37 CFR 41.202

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37 CFR § 41.202 (a)(1)

Applicant requests that the present application be placed into interference with US patent 6,033,935 (US'935)

37 CFR § 41.202 (a)(2)

Applicant proposes that US'935 claims 1, 2 and 3 correspond to the count and that claim 58 of the present application correspond to the count.

PROPOSED COUNT

A method comprising:

providing a substrate having a surface;

forming a plurality of elongated electrical conductors extending away from said surface;

each of said elongated electrical conductors having a first end affixed to said surface and a second end projecting away from said surface;

there being a plurality of said second ends;

providing a means for maintaining said plurality of said second ends in substantially fixed positions with respect to each other;

said means for maintaining is a sheet of material comprising a plurality of openings through which said second ends project.

The following Table 1 shows claims 58 which depends from claim 41 of the present application and claim 1 of US'935 each with numbers added in brackets ,[#], to identify the clauses of the claims. The next Table 2 shows the clauses grouped and in a modified order to show that there is an interference in fact between the present application and US'935. Applicants' claim 58 corresponds to the count since it is identical to the count.

Table 1

Claim 41 and 58 of the present application.	Claim 1 of US'935
1. [1] A method comprising:	2. [1] A method of effecting temporary connections to free ends of at least a portion of a plurality of elongate spring contact elements mounted to and extending from an electronic component such as a semiconductor device, the method comprising:
[2] a providing substrate having a surface;	[2] urging the electronic component against an interconnection substrate so that the free ends of at least a portion of the spring contact elements vertically contact selected ones of a corresponding plurality of terminals on the interconnection substrate;
[3] forming a plurality of elongated electrical conductors extending away from said surface;	[3] providing a rigid planar member between the electronic component and the interconnection substrate;
[4] each of said elongated electrical conductors having a first end affixed to said surface and a second end projecting away from said surface;	[4] providing a plurality of guide holes in the rigid planar member; and
[5] there being a plurality of said second ends;	[5] inserting the free ends of at least a portion of the spring contact elements extending through selected ones of the guide holes.
[6] providing a means for maintaining said plurality of said second ends in substantially fixed positions with respect to each other.	
58. [6] A method according to claim 41 wherein said means for maintaining is a sheet of material comprising a plurality of openings through which said second ends project.	

Claim 58 of the present application corresponds to the count since claim 58 of the present application is the count.

Claims 1,2 and 3 of US '935 corresponds to the count since these claims are obvious in view of the count. Claim 1 and 3 of US'935

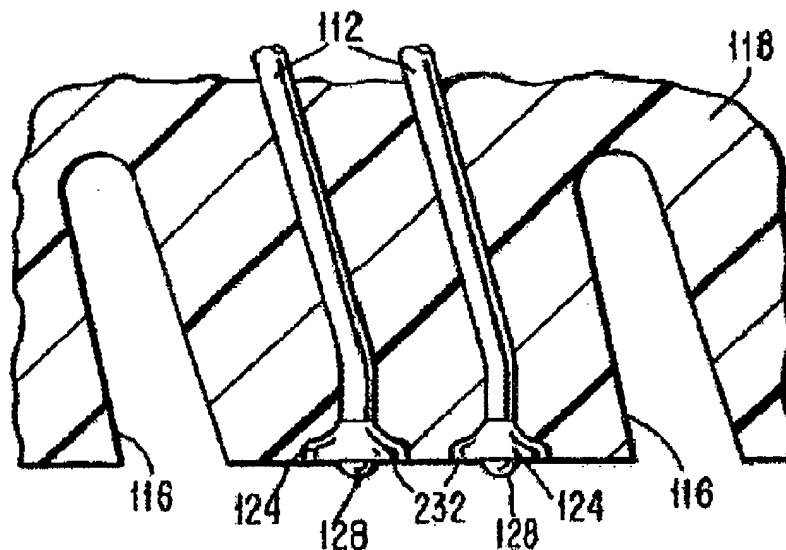
1 and 3 in addition to the recitations of claim 2 recite "moving the interconnection substrate horizontally to effect a pressure connection between the terminal and the end portion of the spring contact element." This additional recitation in claims 1 and 3 is obvious in view of the count since it is obvious in view of the prior art to US'935.

US patent 5,371,654 is a 35 USC 102(b) reference against US '935. At page 9 of applicants' specification US App 07/963,346 filed 10/19/1992 US patent 5,371,654 issued 12/6/1994 is incorporated by reference and applicants claim priority thereto.

US 5, 371, 654 teaches at Col. 11, line 42-51, referring to Fig. 22 thereof:

These pits can have, for example, a hemispherical shape, rectangular shape, pyramidal shape or any other shape. If such an array of pits are used and the wire is bonded in the region of the pit, a protuberance such as 128 of FIG. [23] is formed at the surface 232 of flattened ball. **This protuberance provides a projecting region to the contact formed by flattened ball 124 which can wipe on the surface of the contact location to which the flattened ball is to be electrically connected. (Emphasis added)**

FIG. 23



Wiping the surface of the contact location can be achieved by "moving the interconnection substrate horizontally to effect a pressure connection between the terminal and the end portion of the spring contact element." Pressure connections are what the purpose is if the spring contact element. Se for example original claim 20 of the present application. See for example US 5, 371, 654 teaches at Col. 4, line 42-54, referring to Fig. 4 thereof:

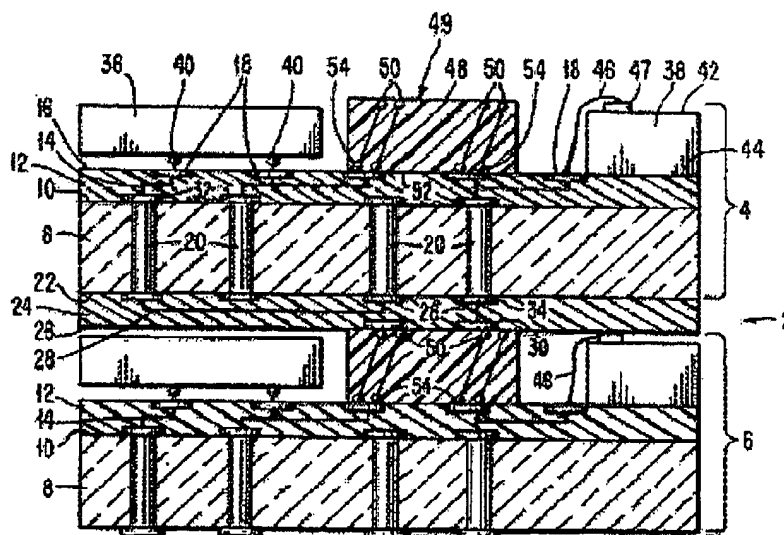
FIG. 4 shows a perspective view of the structure shown in FIG. 1 plus heat dissipation means 51 and 53. Numbers common between FIGS. 1, 2, 3 and 4 represent the same thing. Heat dissipation means 51 and 53 are in thermal contact with substrates 8. The heat dissipation means is preferably made of aluminum. **Substrate 8 is held** in grooves in heat dissipation means 51 and 53 to ensure good thermal contact, mechanical support and **compresses the interconnection means 49** between adjacent assemblies to provide electrical interconnection there between as described herein below. Heat dissipation means 51 and 53 are held in a support frame (not shown).

Claim 3 in addition recites "providing an interconnection substrate with a terminal which is a plated through hole." This additional recitation in claims 3 is obvious in view of the count since it is well known in the art.

At page 9 US App 07/963,346 filed 10/19/1992 US patent 5,371,654 issued 12/6/1994 is incorporated by reference and applicants claim priority thereto. US 5,371,654 teaches at Col. 3, line 42-52, referring to Fig. 1 thereof:

Substrate 8 can be any commonly used multilayered packaging substrate containing a plurality of electrical conductors or glass ceramic and is preferably a highly thermally conductive material such as synthetic diamond, aluminum nitride ceramic, silicon, a metal (such as copper) with an electrically insulating coating. **Substrate 8 preferably has electrically conductive studs or vias 20 or through holes with a sidewall plated with an electrical conductor, such as copper, palladium, platinum and gold, as is commonly known in the art.**

FIG. 1



37 CFR § 41.202 (a)(3)

An interference in fact within the meaning of 37 CFR § 41.203 (a) exists between claim 58 of the present application and claim 2 of US'935. The following Table 1 compares claim 58 of the present application with claim 2 of US'935 Table 2 clearly showing that there is an interference in fact.

TABLE 2

Claim 41 & 58 of the present application.	Claim 2 of US'935
{¶A of present application} [1] A method comprising: [2] a providing substrate having a surface; [3] forming a plurality of elongated electrical conductors extending away from said surface; [4] there being a plurality of said second ends;	{¶A of US'935} 2. [1] A method of effecting temporary connections to free ends of at least a portion of a plurality of elongate spring contact elements mounted to and extending from an electronic component such as a semiconductor device, the method comprising:
{¶B of present application} <i>It is an inherent feature of the method of this claim to urge a first substrate with the plurality of elongated electrical conductors towards a second substrate so that the second ends of the elongated electrical conductors vertically contact terminals on the second substrate as shown in applicants' figures, in particular Figs. 1, 2, 3 and 18.</i>	{¶B of US'935} [2] urging the electronic component against an interconnection substrate so that the free ends of at least a portion of the spring contact elements vertically contact selected ones of a corresponding plurality of terminals on the interconnection substrate;
{¶C of present application} [5] providing a means for maintaining said plurality of said second ends in substantially fixed positions with respect to each other.	{¶C of US'935} [3] providing a rigid planar member between the electronic component and the interconnection substrate;
{¶D of present application} 58. [6] A method according to claim 41 wherein said means for maintaining is a sheet of material comprising a plurality of openings through which said second ends project.	{¶D of US'935} [4] providing a plurality of guide holes in the rigid planar member; and [5] inserting the free ends of at least a portion of the spring contact elements extending through selected ones of the guide holes.

37 CFR 41.203 provides that "An interference exists if the subject matter of a claim of one party would, if prior art, have anticipated or rendered obvious the subject matter of a claim of the opposing party and vice versa." Applying this test to Table 2 above.

¶A of the present application anticipates ¶A of US'935 and ¶A of US'935 anticipates ¶A of the present application.

1. ¶B of the present application anticipates ¶B of US'935 and ¶B of US'935 anticipates ¶B of the present application. ¶B of the present application is an inherent feature of the rest of applicants claims 41 + 58, thus ¶B of US'935 is anticipated.

2. ¶C of the present application anticipates ¶C of US'935 and ¶C of US'935 anticipates ¶C of the present application.

3. ¶D of the present application anticipates ¶D of US'935 and ¶D of US'935 anticipates ¶D of the present application.

37 CFR § 41.202 (a)(4)

Applicant will prevail on priority since applicants claim priority to:

co-pending US Application Serial No. 09/254,769 filed on March 11, 1999, which is the US National Phase of International Application Serial No. PCT/US97/16264 (PCT WO 98/11449) filed on September 12, 1997, which claims priority from US Provisional Application Serial No. 60/026,088 filed on September 13, 1996;

co-pending US Application Serial No. 09/254,768 filed on March 11, 1999, which is US National Phase of International Application Serial No. PCT/US97/16265 (PCT WO 98/11446) filed on September 12, 1997, which claims priority from US Provisional Application Serial No. 60/026,112 filed on September 13, 1996;

co-pending US Application Serial No. 09/254,798 filed on March 11, 1999, which is the US National Phase of International Application Serial No. PCT/US97/13698 (PCT WO 98/11445) filed on September 12, 1997, which claims priority from US Provisional Application Serial No. 60/026,050 filed on September 13, 1996.

Each of applicants' PCT applications designate the US and have earlier filing dates than US'935. Each of applicants provisional applications to which the PCT applications claim priority have a filing date earlier than the provisional application to which US'935 claims priority.

37 CFR § 41.202 (a)(5)

All of applicants claims have written description support in the original claims. Claim 41 is an original claim and claim 58 is supported by Figs. 28 to 31. Since applicants are not designating claims 7,10, 42-43, 49-51 and 59-60 to correspond to the count. Claims 7, 10, 42 and 43 have written description support in original claims 7, 10, 42 and 43. Claim 49 has written description support in specification page 19, lines 3-5 from the bottom, specification page 20, lines 2, original claims 20 and 17 and in Fig. 29 elements 207 and 196. The notice of allowability incorrectly refers to claim 50, but should refer to claim 51 which has written description support in specification at page 20, lines 1-3 and in specification page 19, lines 2-5 from the bottom. Claim 58 and 59 have written description support in Figs. 28 to 31. Claim 60 has written description support in original claims 13 and 25.

Current Claim 7	Original Claim 7
CLAIM 7 A method according to claim 49 wherein said sheet is spaced apart from said surface by a flexible support.	CLAIM 7 A structure according to claim 3 wherein said sheet is spaced apart from said surface by a flexible support.

Current Claim 10	Original Claim 10
CLAIM 10 A method according to claim 7 wherein said sheet and said flexible support forms a space containing said plurality of elongated electrical conductors.	CLAIM 10 A structure according to claim 7 wherein said sheet and said flexible support forms a space containing said plurality of elongated electrical conductors.

Current Claim 41	Original Claim 41
CLAIM 41 A method comprising: providing a substrate having a surface; forming a plurality of elongated electrical conductors extending away from said surface; each of said elongated electrical conductors having a first end affixed to said surface and a second end projecting away from said surface; there being a plurality of said second ends; providing a means for maintaining said plurality of said second ends in substantially fixed positions with respect to each other.	CLAIM 41 A method comprising: providing a substrate having a surface; forming a plurality of elongated electrical conductors extending away from said surface; each of said elongated electrical conductors having a first end affixed to said surface and a second end projecting away from said surface there being a plurality of said second ends; providing a means for maintaining said plurality of said second ends in substantially fixed positions with respect to each other.
Current Claim 42	Original Claim 42

CLAIM 42 A method according to claim 41 wherein said means for maintaining is a sheet formed from a material selected from the group consisting of Invar, Cu/Invar/Cu, molybdenum and polyimides.	A structure according to claim 3 wherein said sheet is formed and material selected from the group consisting of Invar, Cu/Invar/Cu, molybdenum, polyimides.
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Current Claim 43	Original Claim 43
CLAIM 43 A method according to claim 41 wherein said means for maintaining is a sheet formed from a material selected from the group consisting of a metal, a polymer, a semiconductor and dielectric.	A structure according to claim 3 wherein said sheet is formed from a material selected from the group consisting of a metal, a polymer, a semiconductor and dielectric.

Current Claim 49	Support
CLAIM 49 A method according to claim 41 wherein said means for maintaining comprises a sheet of material comprising openings comprising a large region and a small region.	Specification page 19, lines 3-5 from the bottom states: "The holes on the top polymer layer 194 has the shape of an oval shape 196." Specification page 20, lines 1-3 states "the large portion of the oval hole 207 then shifted into the small holes" Fig. 28, 29 elements 207 and 196

Current Claim 49	Support
CLAIM 51 (Previously Presented) A method according to claim 41 wherein said means for maintaining comprises openings comprising a large region and a small region, said compliant elongated electrical conductors are first inserted through said large region and then moved to said small region.	Specification page 19, lines 2-5 from the bottom states: "The holes on the top polymer layer 194 has the shape of an oval shape 196. During the alignment and placement process the wire array is first entering into the large portion of the oval shaped hole, then shifted into the small hole and pressed against the wall." Specification page 20, lines 1-3 states ". The wire array 198 first enters into the large portion of the oval hole 207 then shifted into the small holes and presses against the polymer wall." Fig. 28, 29 elements 207 and 196

Current Claim 58	Support
CLAIM 58 A method according to claim 41 wherein said means for maintaining is a sheet of material comprising a plurality of openings through which said seconds ends project.	Original Claim 41 shown above and Figs. 28 to 31.

Current Claim 59	Support
CLAIM 59 A method according to claim 41 wherein said means for maintaining comprises at least one sheet of material comprising a plurality of openings through which said second ends project.	Original Claim 41 shown above and Figs. 28 to 31.

Current Claim 60	Support
CLAIM 60 A method according to claim 59 wherein of said at least one sheet is a sheet of electrically conductive material which has a top surface and a bottom surface and said openings have a side wall, a dielectric material coats said top surface and said bottom surface and said side wall.	Original Claim 41 shown above and Figs. 28 to 31.

37 CFR § 41.202 (a)(6)

Applicant will prevail on priority since applicants claim priority to each US regular application, PCT application designating the US and each of the provisional applications listed below and wish to be accorded benefit of each of the same:

co-pending US Application Serial No. 09/254,769 filed on March 11, 1999, which is the US National Phase of International Application Serial No. PCT/US97/16264 (PCT WO 98/11449) filed on September 12, 1997, which claims priority from US Provisional Application Serial No. 60/026,088 filed on September 13, 1996;

co-pending US Application Serial No. 09/254,768 filed on March 11, 1999, which is US National Phase of International Application Serial No. PCT/US97/16265 (PCT WO 98/11446) filed on September 12, 1997, which claims priority from US Provisional Application Serial No. 60/026,112 filed on September 13, 1996;

co-pending US Application Serial No. 09/254,798 filed on March 11, 1999, which is the US National Phase of International Application Serial No. PCT/US97/13698 (PCT WO 98/11445) filed on September 12, 1997, which claims priority from US Provisional Application Serial No. 60/026,050 filed on September 13, 1996.

Each of the identified applications is a constructive reduction to practice of the proposed count.

PCT/US 97/16264 (WO 98/11449) which claims priority to US Application 60/026,088 shows a constructive reduction to practice in Figs. 1-19 the text corresponding thereto and in the claims, for example.

46. A method comprising: providing a substrate having a surface; forming a plurality of elongated electrical conductors extending away from said surface; each of said elongated electrical conductors having a first end affixed to said surface and a second end projecting away from said surface; there being a plurality of said second ends; providing a means for permitting each of said plurality of said second ends to move about reference positions.

60. A method according to claim 46 further including moving said second ends into contact with a work piece, said second ends moving about said reference positions.

PCT/US 97/16264 (WO 98/11449) teaches at page 15

"FIGURE 18 schematically shows alternative embodiments of compliant frame structures (17) to support probe tip positioning structure (20) to be maintaining in position and to move as the probe tip ends (16) move when they are moved into engagement with electronic device pads (31)."

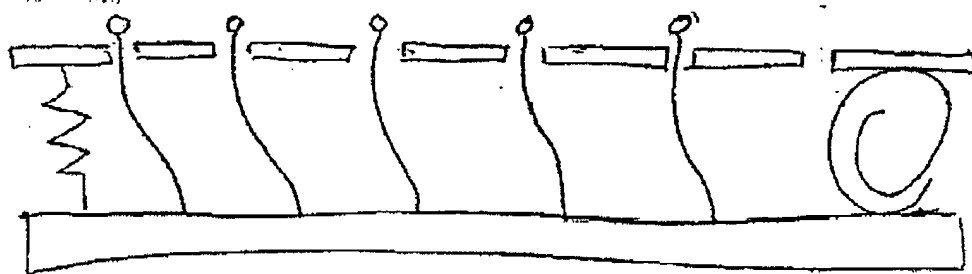


Fig 18
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PCT/US 97/13698 (WO 98/11445) which claims priority to US Application 60/026,088 shows a constructive reduction to practice in Figs. 1-20 (Fig. 8 is below) the text corresponding thereto and in the claims, for example. .

1. A structure comprising: a substrate having a surface; a plurality of elongated electrical conductors extending away from said surface; said elongated electrical conductors having a dielectric coating; and each of said elongated electrical conductors having a first end affixed to said surface and a second end projecting away from said surface.

9. A structure according to claim 1 further including a means for maintaining said plurality of said second ends in substantially fixed positions with respect to a reference position.

11. A structure according to claim 9 wherein said means for maintaining is a sheet or material having a plurality of openings therein through which said second ends project.

16. A structure according to claim 11 wherein said sheet is spaced apart from said surface by a flexible support.

19. A structure according to claim 16 wherein said sheet and said flexible support form a space containing said plurality of elongated electrical conductors.

20. A structure according to claim 19 wherein said space is filled with a flexible material.

27. A structure according to claim 1 wherein said structure is a probe for an electronic device.

PCT/US97/16265 (PCT WO 98/11446) filed on September 12, 1997, which claims priority from US Provisional Application Serial No. 60/026,112 filed on September 13, 1996 in Figs. 1-18, (Fig. 8 is below) the text corresponding thereto and in the claims, for example.

1. A structure comprising: a substrate having a surface; a plurality of elongated electrical conductors extending away from said surface; each of said elongated electrical conductors having a first end affixed to said surface and a second end projecting away from said surface; there being a plurality of said second ends; a means for maintaining said plurality of said second ends in substantially fixed positions.
2. A structure according to claim 1 wherein said first end is affixed to said surface at an electrical contact location.
3. A structure according to claim 1 wherein said means for maintaining is a sheet of material having a plurality of opening therein through which said second ends project.

PCT/US97/16265 at page 10 teaches:

FIGURE 16 schematically shows alternative embodiments of compliant frame structures (17) to support probe tip positioning structure (20) to be maintaining in position and to move as the probe tip ends (16) move when they are moved into engagement with electronic device pads (31).

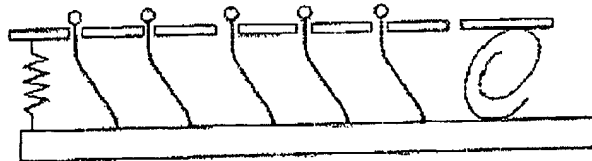
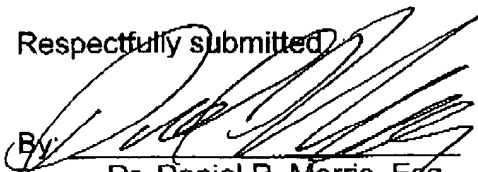


Fig. 16

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Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D. P. Morris', is written over a horizontal line.

By:

Dr. Daniel P. Morris, Esq.
Reg. No. 32,053
Phone No. (914) 945-3217